
BULLETIN

of the

Chicago Herpetological Society



Volume 59, Number 12
December 2024



BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
Volume 59, Number 12
December 2024

Review of African Water Cobras (<i>Boulengerina</i>) from the Congo, with a Range Extension for <i>Boulengerina nana</i> (Collet & Trape, 2020) (Squamata: Serpentes: Elapidae)	Van Wallach	157
Herpetological Art in the Potawatomi Zoo, South Bend, Indiana—October 8, 2024	Roger Carter	165
Minutes of the CHS Board Meeting, November 19, 2024		166
Index to Scientific Names of Amphibians and Reptiles for Volume 59 (2024)		167
Author—Title Index for Volume 59 (2024)		170

Cover: Dwarf water cobra, *Boulengerina nana*, from the Democratic Republic of the Congo. Photograph by Van Wallach.

STAFF

Editor: Michael A. Dloogatch—madadder0@aol.com

2023 CHS Board of Directors

President: Vacant
Vice-president: Caitlin Monesmith
Treasurer: Rich Crowley
Recording Secretary: Gail Oomens
Media Secretary: Gabrielle Evans
Membership Secretary: Mike Dloogatch
Sergeant-at-arms: Tom Mikosz
Members-at-large: Kyle Houlihan
Margaret Ann Paauw

The Chicago Herpetological Society is a nonprofit organization incorporated under the laws of the state of Illinois. Its purposes are education, conservation and the advancement of herpetology. Meetings are announced in this publication, and are normally held at 2:00 P.M., on the third Sunday of each month.

Membership in the CHS includes a subscription to the monthly *Bulletin*. Annual dues are: Individual Membership, \$25.00; Family Membership, \$28.00; Sustaining Membership, \$50.00; Contributing Membership, \$100.00; Institutional Membership, \$38.00. Remittance must be made in U.S. funds. Subscribers outside the U.S. must add \$12.00 for postage. Send membership dues or address changes to: Chicago Herpetological Society, Membership Secretary, 2430 N. Cannon Drive, Chicago, IL 60614.

Manuscripts published in the *Bulletin of the Chicago Herpetological Society* are not peer reviewed. Manuscripts and letters concerning editorial business should be e-mailed to the editor, mdloogatch@chicagoherp.org. Alternatively, they may be mailed to: Chicago Herpetological Society, Publications Secretary, 2430 N. Cannon Drive, Chicago, IL 60614. **Back issues** are limited but are available from the Publications Secretary for \$2.50 per issue postpaid.

Visit the CHS home page at [<http://www.chicagoherp.org>](http://www.chicagoherp.org).

The Bulletin of the Chicago Herpetological Society (ISSN 0009-3564) is published monthly by the Chicago Herpetological Society, 2430 N. Cannon Drive, Chicago IL 60614. Periodicals postage paid at Chicago IL. **Postmaster:** Send address changes to: Chicago Herpetological Society, Membership Secretary, 2430 N. Cannon Drive, Chicago IL 60614.

Review of African Water Cobras (*Boulengerina*) from the Congo, with a Range Extension for *Boulengerina nana* (Collet & Trape, 2020) (Squamata: Serpentes: Elapidae)

Van Wallach
4 Potter Park
Cambridge, MA 02138
serpentes1@comcast.net

Abstract

New data on the three species and two subspecies of Central African water cobras, *Boulengerina annulata annulata*, the Ringed Water Cobra, *B. annulata stormsi*, Storm's Water Cobra, *B. christyi*, Christy's Water Cobra, and *B. nana*, the Dwarf Water Cobra, are provided from 21 specimens collected in Zaire (now the Democratic Republic of the Congo = DRC), 1978–1981. A synopsis of the three species is presented regarding morphology and distribution, and some natural history data are summarized. A range extension of 425 km, from the type locality to Kasangulu, is reported for *Boulengerina nana*.

Keywords: *Boulengerina*, *annulata*, *christyi*, *nana*, DRC, distribution, range extension

Introduction

Three species of water cobras are recognized as inhabiting Central Africa, the majority of which inhabit the Congolese region. They belong to the genus *Boulengerina* Dollo, 1886 (now considered a subgenus by some authors *vide* Wallach et al., 2009). However, molecular studies consistently show four distinct clades of true cobras (Heled and Drummond, 2010): Asian *Naja* (containing 13 species: *atra*, *fluxi*, *kaouthia*, *luzonensis*, *mandalayensis*, *naja*, *oxiana*, *philippinensis*, *sagittifera*, *samarensis*, *siamensis*, *sputatrix*, and *sumatrana*), and the African *Afronaja*, *Boulengerina* and *Uraeus*. These include the sub-Saharan spitting cobras *Afronaja* (containing 7 species: *ashei*, *katiensis*, *mossambica*, *nigricincta*, *nigricollis*, *nubiae*, and *pallida*), the Central African rainforest cobras *Boulengerina* (containing 9 species: *annulata*, *christyi*, *guineensis*, *melanoleuca*, *multifasciata*, *nana*, *peroescobari*, *savannula*, and *subfulva*), and the North African desert cobras *Uraeus* (containing 7 species: *anchietae*, *annulifera*, *arabica*, *haje*, *nivea*, *obscura*, and *senegalensis*). *Naja* separated from the African cobras and invaded Asia in the Miocene (Wüster et al., 2007), after which the three African clades evolved. Classification and nomenclature are better served by recognizing the four subgenera of cobras as valid genera.

The aquatic (or semi-aquatic) water cobras inhabit rivers, lakes and streams of tropical rainforests, feeding upon fishes such as eel catfish and amphibians, and laying from 4 to 24 eggs. They attain rather large sizes, most adults being 1.4–2.2 m long with occasional individuals reaching 2.7–3.0 m in total length (Spawls et al., 2002). A compilation of data on the four taxa reveals considerable variation in scale row counts (17–25 rows anteriorly and at midbody and 11–19 rows posteriorly) but little variation in ventrals, subcaudals and relative tail length (Schmidt, 1923; Loveridge, 1929, 1933; Witte and Laurent, 1942; Witte, 1953;

Laurent, 1956a-b; Kratzer, 1965; Roux-Estève, 1965; Thys van den Audenaerde, 1965; Spawls and Branch, 1995; Pauwels et al., 2002; Broadley et al., 2003; Chippaux, 2006; Pauwels and Vande weghe, 2008; Branch and Conradie, 2013; Spawls et al., 2018; Chippaux and Jackson, 2019; Collet and Trape, 2020; Ceriaco and Marques, 2021; Pietersen et al., 2021; Trape, 2023) (Table 1). An exception was Boulenger (1896), who reported a juvenile *B. stormsi* with a relative tail length of 35.4% (an obvious error). Otherwise, all four taxa have tail lengths that are 17.6–21.7% total length, a quite narrow range for three species (*B. a. annulata* = 19–22%, *B. a. stormsi* = 18–22%, *B. christyi* = 18–20%, and *B. nana* = 19–21%). Additionally, the normal and exceptional counts of dorsal scale rows, ventrals and subcaudals, as well as the proportions of relative tail length and umbilical scar position, are very conservative with little variation and no sexual dimorphism (Tables 1–3).

For example, the subcaudals range from 67 to 79 in *B. a. annulata*, 67–78 in *B. a. stormsi*, 67–73 in *B. christyi*, and 64–79 in *B. nana*. This is a range of 16 subcaudals throughout the four taxa. The five species of the sympatric colubroid water snakes of *Grayia* that are water cobra mimics exhibit the following subcaudal counts: *G. caesar* = 140–162; *G. obscura* = 69–79; *G. ornata* = 65–90; *G. smythii* = 75–110; *G. tholloni* = 100–134. Only *G. obscura* (Chaney et al., 2024) has similar subcaudal counts and it was recently described from 13 specimens; when more material is collected the subcaudal range will likely increase. Therefore, the range of subcaudals in *Grayia* species varies from 25 to 35 and the species counts extend from 65 to 162 in the genus. No fewer than 50 species have ranges of subcaudals of 50 or more*. Not surprisingly most of those species are arboreal, but others are terrestrial and a couple even aquatic.

Boulengerina annulata (Buchholz & Peters in Peters, 1876), the Ringed or Banded Water Cobra, was first described from a

* *Acrochordus granulatus*, *Ahaetulla nasuta*, *A. prasina*, *A. pulverulenta*, *Boiga cynodon*, *B. drapiezii*, *Cercophis auratus*, *Corallus hortulanus*, *Dasypeltis scabra*, *Dendrelaphis bifrenalis*, *D. calligastra*, *D. punctulatus*, *Dipsas indica*, *D. peruana*, *Dispholidus kivuensis*, *Dryophiops rubescens*, *Eirenis persicus*, *Elaphe carinata*, *Erythrolamprus aesculapii*, *E. sagittifer*, *Hebius annamensis*, *Imantodes cenchoa*, *I. gemmistratus*, *Leptophis ahaetulla*, *L. nigromarginatus*, *Lepturophis albofuscus*, *Liopholidophis grandidieri*, *L. rhadinaea*, *L. sexlineatus*, *Masticophis taeniatus*, *Mastigodryas melanolomus*, *Morelia azurea*, *M. viridis*, *Oligodon lungshenensis*, *O. macrurus*, *Opheodrys aestivus*, *Ophiophagus bungarus*, *Oxybelis aeneus*, *Philodryas trilineata*, *Platyceps ladacensis*, *P. rhodorachis*, *P. saharicus*, *Psammophis punctulatus*, *P. schokari*, *P. sibilans*, *Ptyas dhumnades*, *Rhadinaea decorata*, *Sibynophis melanocephalus*, *Uromacer frenatus*, *Xenodermus javanicus*.

Table 1. Summary of scale counts and other data for the four *Boulengerina* taxa. **Sex** = gender of specimen, with M = male, F = female, All = both sexes combined (plus literature data that was not identified to gender); **ASR**, **MSR** and **PSR** = anterior, midbody and posterior scale rows (exceptional counts shown in parentheses); **Ven** = ventrals; **SC** = subcaudals, **LOA** = total length in mm; **RTL** = relative tail length as % total length; **US-V** = umbilical scar to vent interval as % total ventrals; **Elev** = elevation in meters above sea level. Sources: Werner, 1902; Boulenger, 1904; Schmidt, 1923; Witte, 1953; Stucki-Stirn, 1979; Rasmussen, 1991; Fischer and Hinkel, 1992; Spawls and Branch, 1995, 2020; Spawls et al., 2002, 2018; Broadley et al., 2003; O’Shea and McIntyre, 2005; Chirio and LeBreton, 2007; Branch, 2018; Collet and Trape, 2020; Chippaux and Jackson, 2019; Trape, 2023.

Taxon	Sex	ASR	MSR	PSR	Ven	SC	LOA	RTL	US-V	Elev
<i>B. a. annulata</i>	M	23,25 (21,24)	23 (21)	17 (15,19)	195–205	71–79	372–1453	19.0–21.2	18.1–25.9	
	F	23,25	23 (20)	17	211.5–226	71–73	405–1550	16.1–21.7	21.7	
	All	23,25 (21,24)	23 (20–25)	17 (15,16,19)	192–226	67–79	372–2800	19.0–21.7	18.1–25.9	10–855
<i>B. a. stormsi</i>	M	23 (25)	21 (19)	13 (16,17)	196–210.5	69–72	377–1580	17.6–21.0	21.9–25.2	
	F	23 (24)	23	14,17	207–212	71	240–1743	18.4–20.1	22.7	
	All	23 (24,25)	21,23 (19,25)	13,17 (14,16)	192–218	67–78	240–2700	17.6–21.5	21.9–25.2	725–1190
<i>B. christyi</i>	M	17,19	17	11,12	204–209	68–70	300–1200	18.8	21.1	
	F	19 (20)	17 (19)	13,14	206–213	67–73	474–2355	18.1–19.3	18.4–20.2	
	All	17,19 (20,21)	17 (19)	13 (11,12,14)	204–221	67–73	300–2500	18.1–19.5	18.4–21.1	5–700
<i>B. nana</i>	M	19,21 (23)	19 (17,18,20,21)	13,15 (16)	186–202	65–74	725–1322	18.5–19.6	?	
	F	21,23	19 (18,20,21)	13,15,17	192–209	64–79	612–1107	19.3–21.4	?	
	All	19–23	19,21 (17,18)	13,15,17 (16)	186–209	64–79	612–1340	18.5–20.6	?	250–295

specimen collected by R. W. Buchholz in 1874–1875 in western Gabon. *Aspidelaps bocagei* Sauvage, 1884 was next described from a specimen from Angola. It was removed from the synonymy of *B. melanoleuca* and synonymized with *B. annulata* by Wüster et al. (2018). The generic name *Boulengerina* was proposed by Dollo (1886) with the description of *B. stormsi* from Lake Tanganyika. That taxon was relegated to subspecific status of *B. annulata* by Loveridge (1931). Another water cobra, *Boulengerina dybowskii* Mocquard (1897), was also described from Gabon. It was placed in the synonymy of *B. annulata* by Schmidt (1923). At present there are two recognized subspecies of *B. annulata*, the western form, *B. a. annulata*, and the eastern variety, *B. a. stormsi*.

Boulengerina annulata is a semi-aquatic species of Central and West Africa that is reported from extreme southeastern Nigeria (?), southern Cameroon (Sud-Ouest, Littoral, Centre, Sud, and Est regions), southwestern Central African Republic (Mambéré-Kadéï, Ombella M’Poko, and Ouham prefectures), Equatorial Guinea (Centro Sur Province), Gabon (Estuaire, Haut-Ogooué, Moyen-Ogooué, Ngounié, Nyanga, Ogooué-Ivindo, Ogooué-Lolo, Ogooué-Maritime, and Woleu-Ntem provinces), northern Angola (Cabinda and Lunda Norte provinces), Congo-Brazzaville (Sangha, Plateaux, Pool, and Kouilou regions), the Democratic Republic of the Congo (DRC) (Kongo-Central, Kinshasa, Maï-Ndombé, Equateur, Tshuapa, Tshopo, Baus-Uele, Haut-Uele, Ituri, Nord-Kivu, Süd-Kivu, Kasai-Oriental, Lomami, Tanganyika, and Haut-Katanga provinces),

extreme northern Zambia (Luapula and Northern provinces), southern South Sudan (Central Equatoria State), western Rwanda (Western Province), extreme southwestern Burundi (Bujumbura, Bururi, and Makamba provinces), and extreme western Tanzania (Kigoma, Katavi, and Rukwa regions) (Schmidt, 1923; Witte, 1953, 1962; Stucki-Stirn, 1979; Rasmussen, 1991; Fischer and Hinkel, 1992; David and Ineich, 1999; LeBreton, 1999; Spawls et al., 2002; Broadley et al., 2003; Chirio and LeBreton, 2007; Branch and Conradie, 2013; Branch, 2018; Marques et al., 2018; Spawls et al., 2018; Chippaux and Jackson, 2019; Trape, 2023; Wallach, pers. obs.). The elevational range is from 0–855 m for *B. a. annulata* and 725–1190 m for *B. a. stormsi*. Reported size ranges from 372–2700 mm (up to 3.0 m in some reports) in *B. a. annulata* and from 240–2500 mm (up to 2.7 m according to some reports) in *B. a. stormsi*. My sample of nine *B. a. annulata* was biased for juvenile males: all snakes were males and measured 371–463 mm in length ($\bar{x}$ = 457.2 mm, n = 10). The two specimens of *B. a. stormsi* measured 1304 mm (male) and 1743 mm (female), suggesting a sexual size dimorphism as in *B. christyi*. Literature records of *B. a. annulata* vary from 2–22 black rings or crossbands and *B. a. stormsi* with 0–24 dark rings. Only the first one or two black crossbands behind the black nuchal collar are actually complete rings that cross the venter; the remaining crossbands, whether single or bifurcated, cross only the dorsum and not the venter. My specimens of *B. a. annulata* had 12–19 ($\bar{x}$ = 16.8, n = 10) and *B. a. stormsi* had 6–15 ($\bar{x}$ = 10.5, n = 2). Clutch size has been reported as 8–24 eggs.

Table 2. Summary of *Boulengerina* specimens from the DRC plus specimens from the MCZ. See Table 1 for definitions of **ASR**, **MSR**, **PSR**, **Ven** and **SC**. **VW** = Wallach field no.; **Museum** = museum of deposition (see Materials and Methods for acronyms) and catalogue number if known, ? = unknown museum; **SVL** = snout–vent length in mm; **SL** = number of supralabials, followed in parentheses by the SL in contact with the orbit; **PrO** = number of preoculars, **PtO** = number of postoculars, **IL** = number of infralabials, followed in parentheses by the IL in contact with the anterior genials; **AT** = number of anterior temporals; **PT** = number of posterior temporals.

Species	VW	Museum	Sex	ASR	MSR	PSR	Ven	SC	SVL	LOA	SL	PrO	PtO	IL	AT	PT
<i>B. a. annulata</i>	1779	FMNH 214759	M	25	23	17	198	74	348	433	6/7(3-4)	1	2	8(4)	1	3/2
	1800	FMNH 214755	M	24	23	19	196	72	375	463	7(3-4)	1	2	8(4)	1	3
	1808	?	M	23	23	17	195	77	297	391	7(3-4)	1	2	8(4)	1	2/3
	1822	FMNH 214758	M	24	23	15	203	74	323	403	7(3-4)	1	2	9(4)	1	3
	1860	?	M	23	23	17	196	71	321	401	7(3-4)	1	2	7(4)	1	3
	1952	FMNH 214756	M	25	23	15	198	75	444	559	7/6(3-4)	1	2	8(4)	1	2
	1981	FMNH 214757	M	23	21	17	198	75	475	591	7(3-4)	1	2	8(4)	1	3/2
	1982	FMNH 214754	M	25	23	19	202	72	450	559	7(3-4)	1	2	8(4)	1	3
	1089	?	M	25	23	17	204.5	79	294	372	7(3-4)	1	2	8/9(4)	1	1/2
	2856	?	M	23	23	17	197	72	340	420	7(3-4)	1	2	8/7(4)	1	3/2
		MCZ 13608	M	21	21	15	202	73+	1177	1453+	7(3-4)	1	2	8(4)	1	3
		MCZ 182630	M	23	23	17	205	75	326	406	7(3-4)	1	2	9/8(4)	1	3
		MCZ 29358	F	23	20	17	226	71	990	1183	7/8(3-4)	1	2	8(4)	1	1/2
		MCZ 182629	F	25	23	17	211.5	73	330	405	7(3-4)	1	2	9/8(4)	1	2/3
<i>B. a. stormsi</i>	2370	UNAZA	M	23	21	16	197	70	1035	1304	7(3-4)	1	2	9/8(4)	1	2/1
		MCZ 30404	M	23	19	13	202	72	1302	1580	7(3-4)	1	2	8(4)	1	2
		MCZ 54840	M	25	21	17	210.5	72	472	590	7(3-4)	1	2/3	8(4)	1	2
		MCZ 54841	M	23	21	13	196	69	368	463	7(3-4)	1	2	8(4)	1	2
	2371	UNAZA	F	24	23	17	212	71	1392	1743	7(3-4)	1	3/2	9/7(4)	1	2
		MCZ 30403	F	23	23	14	207	20+	1610	1703+	7(3-4)	1	2	8(4)	1	2
<i>B. christyi</i>	1092	SDSU	M	19	17	12	204	68	975	1200	8/7(3-4)	1	2/3	8(4)	1/2	3/1
	1345	UF-FSM	M	17	17	11	209	70	951	1171	7(3-4)	1	2	8(4)	1	2/3
	1091	SDSU	F	20	17	13	207	67	1925	2355	7(3-4)	1	2	8(4)	2/1	3/2
	1128	SDSU	F	19	17	14	213	73	1674	2048	7/8(3-4)	1	2	9(4)	1/2	2/3
	1158	UF 52720	F	19	17	13	210	71	994	1224	7(3-4)	1	2	8(4)	1	2/3
	1778	FMNH 214833	F	19	17	13	211	69	1700	2077	7(3-4)	1	2	8(4)	1/2	2/1
	1804	?	F	19	17	13	207	73	1279	1584	7(3-4)	1	2/3	8(4)	1	2
	1830	LSUMZ 40826	F	19	19	14	211	71	1825	2220	8(4-5)	1	3/2	8/7(4)	1	3
	2323	UF 75997	F	19	17	13	213	72	1201	1474	7/8(3-4)	1	2/3	8/7(4)	1/2	2
<i>B. nana</i>	1364	?	M	23	21	16	200	72	1077	1322	7(3-4)	1	2	8/7(4/3)	1	1/2

Boulengerina christyi (Boulenger, 1904), the Plumbeous River Cobra or Christy's/Congo Water Cobra, was described based on a specimen from Kinshasa, DRC. It was transferred to a new genus, *Limnonaja*, by Schmidt (1923) but *Limnonaja* was considered a synonym of *Boulengerina* by Bogert (1943). *Boulengerina christyi* (Boulenger, 1904), is a more aquatic species inhabiting rivers and waterways of Central Africa from Congo-Brazzaville, Angola, and the Democratic Republic of the Congo (Congo-Kinshasa or DRC). It is known from northwestern Angola (Cabinda Province), southern PRC (Kouilou and Pool regions) and the southwestern DRC (Kongo-Central, Kinshasa, and Maï-Ndombé provinces) (Schmidt, 1923; Witte, 1962; Trape and Roux-Estève, 1990, 1995; Chippaux and Jackson, 2019; Trape, 2023). It occurs from 5–700 m in elevation throughout its range. The total length of *B. christyi* varies from 300–2500 mm. In my small sample of nine specimens, the

females were much larger than the males: males were 1171–1200 mm in length ($\bar{x}$ = 1185.5 mm, n = 2) whereas the females were 1474–2355 mm ($\bar{x}$ = 1854.6 mm, n = 7), with four specimens longer than 2000 mm. Most specimens of *B. christyi* appear unicolored plumbeous to dark purple with faintly visible yellow crossbars only one scale row in width. The photos in Trape (2023: 216) illustrate the lack of dark rings but depict three faint yellow crossbars being present. My sample of *B. christyi* had 0–10 light crossbars ($\bar{x}$ = 5.2, n = 9). A single female had eight eggs (four in each oviduct) along with eight enlarged follicles (four in each ovary).

Boulengerina nana (Collet & Trape, 2020), the recently described semi-terrestrial Dwarf Water Cobra, is a DRC endemic that is currently known only from the type locality of Lac Maï-Ndombé Province, DRC (Collet and Trape, 2020; Raw and

Table 3. Summary of *Boulengerina* specimens from the DRC plus specimens from the MCZ (cont'd). **Lat** = latitude in degrees; **Long** = longitude in degrees; **Country** = country of origin: CAM = Camaroon; DRC = Democratic Republic of the Congo; PRC = People's Republic of the Congo; TAN = Tanzania. See Tables 1 and 2 for explanations of remaining column headings.

Species	VW	Museum	Sex	RTL	US-V	Locality	Country	Collection date	Lat	Long	Elev
<i>B. a. annulata</i>	1779	FMNH 214759	M	19.6	22.2	Kinsuka	DRC	26 April 1980	−4.339565	15.211515	260
	1800	FMNH 214755	M	19.0	22.5	Kinsuka	DRC	4 May 1980	−4.339565	15.211515	260
	1808	?	M	20.0		Kinsuka	DRC	10 May 1980	−4.339565	15.211515	260
	1822	FMNH 214758	M	19.9	24.6	Kinsuka	DRC	17 May 1980	−4.339565	15.211515	260
	1860	?	M	20.0	21.9	Kinsuka	DRC	31 May 1980	−4.339565	15.211515	260
	1952	FMNH 214756	M	20.6	24.2	Kinsuka	DRC	20 August 1980	−4.339565	15.211515	260
	1981	FMNH 214757	M	19.6		Madimba	DRC	16 October 1980	−4.984638	15.133205	545
	1982	FMNH 214754	M	19.5		Madimba	DRC	16 October 1980	−4.984638	15.133205	545
	1089	?	M	21.0	18.1	Kafumba	DRC	10 April 1979	−5.357458	18.953975	475
	2856	?	M	19.1	25.9	Kinsuka	DRC	2 June 1981	−4.339565	15.211515	260
		MCZ 13608	M	19.0	23.8	Tshopo	DRC	1 December 1909	0.545546	24.904221	460
		MCZ 182630	M	21.2	19.5	Bomassa	PRC	1 July 1997	−2.2050	16.1865	350
		MCZ 29358	F	16.3		Bipindi	CAM	1 January 1929	3.077633	10.410159	80
		MCZ 182629	F	18.5	21.7	Bomassa	PRC	3 July 1997	−2.2050	16.1865	350
<i>B. a. stormsi</i>	2370	UNAZA	M	20.6		Uvira	DRC	2 November 1979	−3.425535	29.049193	770
		MCZ 30404	M	17.6	24.3	Kipili	TAN	19 May 1930	−7.445	30.602	770
		MCZ 54840	M	20.0	21.9	Karemna	TAN	23 June 1956	−6.821	30.429	770
		MCZ 54841	M	20.5	25.2	Karemna	TAN	5 July 1956	−6.821	30.429	770
	2371	UNAZA	F	20.1		Uvira	DRC	2 November 1979	−3.425535	29.049193	770
		MCZ 30403	F	—	22.7	Kasanga	TAN	17 May 1930	−8.454	31.130	770
<i>B. christyi</i>	1092	SDSU	M	18.8	21.1	Mimosa	DRC	16 April 1979	−4.326099	15.237156	265
	1345	UF-FSM	M	18.8		Mbanza-Ngungu	DRC	16 September 1979	−5.246466	14.859498	700
	1091	SDSU	F	18.3		Mimosa	DRC	16 April 1979	−4.326099	15.237156	265
	1128	SDSU	F	18.3		Mimosa	DRC	14 April 1979	−4.326099	15.237156	265
	1158	UF 52720	F	18.8		Mimosa	DRC	4 May 1979	−4.326099	15.237156	265
	1778	FMNH 214833	F	18.2		Kinsuka	DRC	26 April 1980	−4.339565	15.211515	260
	1804	?	F	19.3	18.4	Madimba	DRC	10 May 1981	−4.984638	15.133205	545
	1830	LSUMZ 40826	F	17.8		Madimba	DRC	17 May 1980	−4.984638	15.133205	545
	2323	UF 75997	F	18.5	20.2	Kinsuka	DRC	6 March 1981	−4.339565	15.211515	260
<i>B. nana</i>	1364	?	M	18.5		Kasangulu	DRC	28 September 1979	−4.525	15.060	250

Deacon, 2021; Trape, 2023). It has an elevational range is only 250–295 m. Being smaller than the other two cobras, it ranges in size from 612–1340 mm (hatchling size is unknown). Clutch size is reported as 4–7 eggs (Raw and Deacon, 2021). An apparent hybrid between *B. annulata* and *B. nana* is seen in a photograph in Trutnau (1998: p. 61, and 2004: p. 35), where the neck region displays an *annulata* pattern of nuchal collar and two black crossbands followed by the spotted and lineolate pattern of *B. nana*. The two species are apparently sympatric, as they both inhabit Maï-Ndombé Province in the DRC.

Materials and Methods

Museum collections: FMNH = Field Museum of Natural History, Chicago; FSM = Florida State Museum; LSUMZ = Louisiana State University Museum of Natural Science (Zoology); MCZ = Museum of Comparative Zoology, Harvard Uni-

versity; SDSU = San Diego State University Museum of Biodiversity; UF = University of Florida, Florida Museum of Natural History; UNAZA = National University of Zaire.

During the three years I lived in Zaire I acquired 21 specimens of *Boulengerina*, which, at the time, I identified as *B. annulata* and *B. christyi*. I had the assistance of a local teenager, Christof Nsilu Luyala, who became my premier snake collector. From August 1978 to May 1981, Christof collected some 1000 of the 2000 snakes I acquired during my residence there. Christof collected snakes, both dead and alive, from his explorations and treks into bush the surrounding rural villages to visit family members. He would travel from village to village and leave bottles for snakes, returning at a later date to collect them. I taught him how to catch live snakes, providing him with a snake stick and bags, and also gave him gallon jars with 70% isopropanol (the only available preservative) for the dead specimens

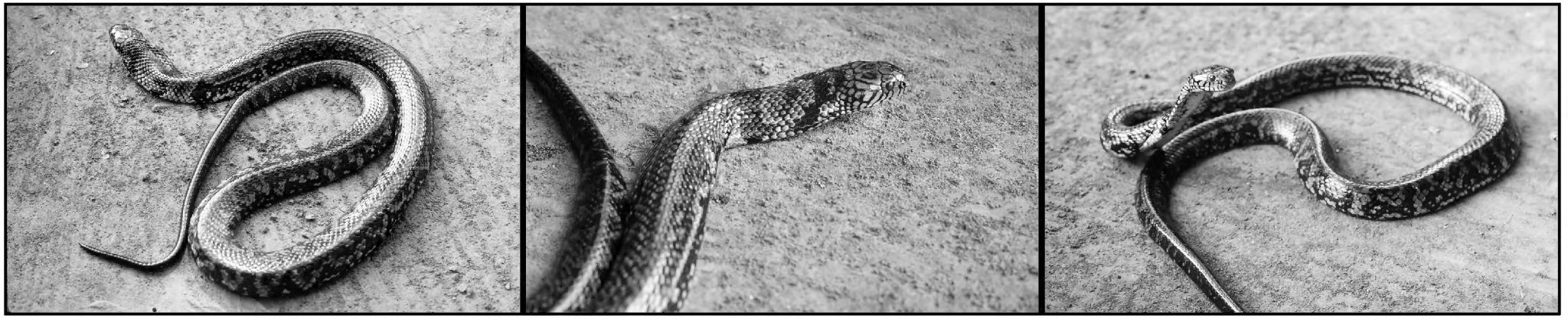


Figure 1. Photographs of live *Boulengerina nana* from Kasangulu, DRC.

he would encounter. As an incentive for catching living specimens, I paid ten times the price of that for a dead snake. Christof's father was a fisherman on the Congo River near Stanley Pool, and most of the *Boulengerina* originated from his father's fish traps. The snakes would enter the traps to feed upon the captured fish and then find themselves caught. Bites from these snakes collected by fishermen are occasionally fatal (see Pauwels et al., 2023: p. 145). Christof always captured his snakes alive and was only bitten once (by a juvenile puffadder, *Bitis arietans*) in the three years he collected snakes. He suffered the bite on his left finger but still collected the snake alive and brought it to me. And he survived without treatment after I sent him to the local hospital (which of course had no antivenin — he later told me he was treated with aspirin and an anti-inflammatory). I obtained specimens of 11 *Boulengerina annulata*, nine *B. christyi*, and one unusually patterned and docile *Boulengerina* from Christof.

Both *B. annulata* and *B. christyi* reared up, spread a narrow hood, and frequently hissed, unlike *B. melanoleuca*, which spread a wider hood and more usually struck at the glass, even after a year or two of captivity. Dissection of *B. christyi* revealed that their diet seemed to consist mainly of slimy, black eel catfish (called *Ngolo* in Lingala but scientifically *Channallabes apus* of the family Clariidae), which I bought from the women in the local market. In order to keep the *Boulengerina* alive, I had to force feed them as they were kept in a dry cage with only a water dish for drinking.

Results

On 28 November 1979 an unusual specimen of *Boulengerina* was collected by my local collector Christof in the Congo River near Kasangulu (ca. 4.525°S, 15.060°W, elev. 250 m), Kongo Central Province, DRC (Figure 1). This locality is ca. 30 km southwest of Kinshasa and represents a range extension of 425 km southwest of the type locality. It was found lying in shallow water at the river's edge and was captured alive. It was 1322 mm in total length with a tail 245 mm long (relative tail length 18.5%), had a cylindrical body with glossy scales. Scale counts were as follows: 23-21-16 scale rows arranged longitudinally; scales smooth, lacking apical pits; 200 rounded ventrals, cloacal shield entire, 72 paired subcaudals, also rounded; seven supralabials with 3rd and 4th entering the orbit, 6th the largest (fused to lower anterior temporal); infralabials 8/7 (2nd and 3rd fused on right side) with first four contacting the anterior genials, the 4th/3rd largest; nostril directed laterally, nasal completely divided, prenasal three times the size of postnasal; loreal absent, one preocular, two postoculars, temporals 1+1/2 or 1+2+1.

The snake exhibits the three typical color pigments of *B. annulata* (black, olive and pale yellow) but instead of numerous paired black rings on an olive or tan background, the dorsum has a faintly lineolate pattern, especially apparent anteriorly but broken up into a reticulate or chainlike pattern posteriorly. A series of irregular black chainlike markings occurs middorsally on an olive ground color. Ventrolaterally a series of roughly diamond-shaped black markings with light olive centers occurs on rows I–VI. Connecting these two patterns laterally is a series of irregular black zigzags. Rows I–III and lower half of row IV have a lemon-yellow ground color, as does the venter. The interstitial skin is also pigmented pale lemon and is visible when the scales are stretched or the body expanded. The usual black transverse nuchal collar is present along with a second, wider crossband posterior to it. A third crossband is present and it forms a complete ring across the venter but is broken mid-dorsally. The anterior third of the body shows a markedly lineolate pattern that is broken up more posteriorly. The tail is entirely black (dorsally and ventrally). The venter is pale yellow with the posterior and lateral edges of the ventrals bordered in black. The area of pigmentation increases caudally until it reaches the subcaudals, which are entirely black (with a few scattered yellow spots).

Unlike the other water cobras (*B. annulata* and *B. christyi*), which were fearful and aggressive in captivity, constantly spreading their hoods, striking at the glass in their cages, and defecating when handled for feeding, this snake was quite gentle and good natured, accepting handling without any defensive demonstrations, a fact noted earlier by Loveridge (1931, 1933). In fact, it was difficult to get the snake to raise its hood, and when it did so, the hood appeared much narrower than in the local terrestrial cobras (*Afronaja* and *Uraeus*).

At that time I believed it was a variant of the cross-banded pattern of *B. annulata* in which the pattern rotates 90° as has been reported in a number of other unrelated species such as *Python regius*, *Lampropeltis californiae*, *Heterodon nasicus*, *Lycodon aulicus*, *Pantherophis guttatus*, *Pituophis catenifer*, *Agkistrodon contortrix*, *Crotalus atrox*, *C. horridus*, and *Daboia russelii* (Klauber, 1936, 1939, 1956; Smith, 1943; Mayr, 1944; Pritzel, 2011; Berry, 2012, Parmar and Kaiser, 2024). Thus, Broadley et al. (2003: p. 109, photo 60) published a photo of this snake with the erroneous name that I provided of *Boulengerina annulata*. This specimen is correctly referable to the species *Boulengerina nana* (Collet & Trape, 2020), known from Lac Mäi-Ndombé and Bokebeni in Mäi-Ndombé Province, DRC, and represents a range extension of 500 (airline) km to the southwest of the type locality.

Key to the water cobras of Africa

- 1a. Midbody scale rows usually 21–23; dorsum tan with 2–24 single or paired black crossbands-----*B. annulata*
1b. Midbody scale rows usually 17–19; dorsum lacking black crossbands----- 2
- 2a. Midbody scale rows usually 17; head shields unicolored; dorsum uniformly plumbeous, silvery purple, or dark gray with a few yellow crossbars anteriorly----- *B. christyi*
2b. Midbody scale rows usually 19; head shields bordered in black; dorsal pattern variegated in tan and black----- *B. nana*

Summary

This paper reviews the three water cobra species of Central Africa, (*Boulengerina annulata*, *B. christyi*, and *B. nana*) and provides a synopsis of their distribution and natural history. The author's small collection of all three species from the DRC is described and scale counts and measurements are summarized. A range extension of *Boulengerina nana* from Kasangulu, DRC, which is 425 km to the southwest of the type locality of Mai-Ndombé, is reported. Until now, *B. nana* has only been found near the type locality but this specimen suggests that the distribution of *B. nana* may be more widespread than previously thought. The three water cobras display identical head shields (supralabials, infralabials, oculars), similar segmental counts (ventrals and subcaudals), and similar body proportions (relative tail length and umbilical scar position). The posterior temporals

vary intraspecifically in *B. a. annulata* (1–3), *B. a. stormsi* (1–2), *B. charistyi* (1–3), and *B. nana* (1–2) but there is no interspecific distinction. Midbody scale rows of *Boulengerina nana* (19) are intermediate between those of *B. annulata* (21–23) and *B. christyi* (17). The only other characters that distinguish the four taxa are adult size and behavior. *Boulengerina a. annulata*, *B. a. stormsi*, and *B. christyi* reach more than 2.5 m in length and *B. nana*, the Dwarf Water Cobra, is less than 1.4 m long. *Boulengerina christyi* is a fully aquatic species whereas *B. annulata* and *B. nana* are semi-aquatic in activity pattern.

Acknowledgments

My heartfelt appreciation goes out to the memory of Christof Nsilu Luyala, the Congolese teenager who collected some 1000 snakes, both dead and alive, for me for the three years I lived in Zaire. He not only provided half of the total specimens I acquired but also was responsible for the rarest and most unusual snakes. When I returned to the DRC for an environmental conference in Kinshasa in 2007, I had hoped to meet up with Christof again after 25 years, but I then learned the sad news that he had passed away. I want to thank Stevie Kennedy-Gold, the Herpetology Collections Manager of the MCZ, for access to specimens and a workspace. Lastly, I am grateful to all of the worldwide curators who exchanged their local species for my Zairian material (after I was done dissecting them), to further my visceral anatomy research.

Literature Cited

- Berry, J. R. 2012. Designer-morphs: Western hognose snakes. Bristol, UK: BIG Reptile World. 198 pp.
- Bogert, C. M. 1943. Dentitional phenomena in cobras and other elapids with notes on adaptive modification of fangs. *Bulletin of the American Museum of Natural History* 81(3):285-360.
- Boulenger, G. A. 1896. Catalogue of the snakes in the British Museum (Natural History). Volume III. London: British Museum (Natural History).
- . 1904. Descriptions of two new elapine snakes from the Congo. *Annals and Magazine of Natural History (Series 7)* 14(79):14-15.
- Branch, W. R. 2018. Snakes of Angola: An annotated checklist. *Amphibian & Reptile Conservation* 12(2):41-82.
- Branch, W. R., and W. Conradie. 2013. Geographical distribution: Elapidae: *Naja (Boulengerina) annulata annulata* Buchholtz and Peters, 1876. Banded water cobra. *African Herp News* (59):50-53.
- Broadley, D. G., C. T. Doria and J. Wigge. 2003. Snakes of Zambia: An atlas and field guide. Frankfurt am Main, Germany: Edition Chimaira.
- Ceríaco, L. M. P., and M. P. Marques. 2021. Serpentes venenosas de Angola: Guia de identificação e primeiros socorros. Porto, Portugal: Arte e Ciência.
- Chaney, T., O. S. G. Pauwels, Z. T. Nagy, V. Gvoždík, C. Kusamba, G. Badjedjea, F. M. Masudi, J. B. Akuboy, R. Ernst, J.-F. Trape, L. Chirio, W. Conradie, C. Keates, V. Wallach, A.-G. Zassi-Boulou, E. R. Vaughan and E. Greenbaum. 2024. Phylogenetics and integrative taxonomy of African water snakes (Squamata: Colubridae: *Grayia*). *Herpetological Monographs* 38:1-52.
- Chippaux, J.-P. 2006. Les serpents d'Afrique occidentale et centrale. 3rd edition. Paris: IRD Éditions.
- Chippaux, J.-P., and K. Jackson. 2019. Snakes of central and western Africa. Baltimore: Johns Hopkins University Press.
- Chirio, L., and M. LeBreton. 2007. Atlas des reptiles du Cameroun. Paris: IRD Éditions.
- Collet, M., and J.-F. Trape. 2020. Une nouvelle et remarquable espèce de *Naja* semi-aquatique (Elapidae, sous-genre *Boulengerina* Dollo, 1886) de la République Démocratique du Congo. *Bulletin de la Société Herpétologique du France* (173):41-52.
- David, P., and I. Ineich. 1999. Les serpents venimeux du monde: Systématique et répartition. *Dumerilia* 3:1-499.

- Dollo, M. L. 1886. Notice sur les reptiles et batraciens recueillis par M. le Capitaine Ém. Storms dans la région du Tanganyka. II. Formes Nouvelles. Bulletin du Musée Royal d'Histoire Naturelle de Belgique 4:158-160.
- Fischer, E., and H. Hinkel. 1992. Natur Ruandas / La Nature du Rwanda. Mainz, Germany: Ministerium des Innern und für Sport Rheinland-Pfalz.
- Heled, J., and A. J. Drummond. 2010. Bayesian inference of species trees from multilocus data. Molecular Biology and Evolution 27(3): 570-580.
- Klauber, L. M. 1936. The California king snake: a case of pattern dimorphism. Herpetologica 1(1):18-27.
- . 1939. A further study of pattern dimorphism in the California king snake. Bulletins of the Zoological Society of San Diego (15):1-23.
- . 1956. Rattlesnakes: Their habits, life histories, and influence on mankind. 2 volumes. Berkeley: University of California Press.
- Kratzer, H. 1965. Über die Tanganyika-Wasserkobra (*Boulengerina annulata stormsi*). Salamandra 1(3):61-67.
- Leeson, F. 1950. Identification of snakes of the Gold Coast. London: Crown Agents for the Colonies.
- Laurent, R. F. 1956a. Contribution à l'herpétologie de la région des Grands Lacs de l'Afrique centrale. I. Généralités - II. Chéloniens - III. Ophidiens. Annales du Musée Royal du Congo Belge, Série in-8°, Sciences Zoologiques 48:1-390.
- . 1956b. Notes herpétologiques africaines. Revue de Zoologie et Botanie Africaine 53(3-4):229-256.
- LeBreton, M. 1999. A working checklist of the herpetofauna of Cameroon. Amsterdam: Netherlands Committee for IUCN.
- Loveridge, A. 1929. East African reptiles and amphibians in the United States National Museum. Bulletin of the United States National Museum (151):1-135.
- . 1931. On two amphibious snakes of the Central African lake region. Bulletin of the Antivenin Institute of America 5(1):7-12.
- . 1933. Reports on the scientific results of an expedition to the southwestern highlands of Tanganyika Territory. VII. Herpetology. Bulletin of the Museum of Comparative Zoology at Harvard College 74(7):197-416.
- Marques, M. P., L. M. P. Ceríaco, D. C. Blackburn and A. M. Bauer. 2018. Diversity and distribution of the amphibians and terrestrial reptiles of Angola. Atlas of historical and bibliographic records (1840–2017). Proceedings of the California Academy of Sciences (Series 4) 65 (Supplement II):1-501.
- Mayr, E. 1944. Remarks on Hobart Smith's analysis of the western king snakes. American Midland Naturalist 31(1):88-95.
- Mocquard, F. 1897. Sur une collection de reptiles recueillie par M. Haug, a Lambaréné. Bulletin de la Société Philomathique de Paris (1896–1897) (Série 8) 9(1):5-20.
- O'Shea, M., and P. B. McIntyre. 2005. Natural history notes: Serpentes: *Boulengerina annulata stormsi* (Storm's Water Cobra). Attempted predation. Herpetological Review 36(2):189.
- Parmar, D. S., and H. Kaiser. 2024. Sparks among the snakes? Unusual colour morphs in *Daboia russelii* (Shaw & Nodder, 1797) and *Lycodon aulicus* (Linnaeus, 1758) and possible genetic correlations. Herpetology Notes 17:673-677.
- Pauwels, O. S. G., A. Kamdem Toham and C. Chimsunchart. 2002. Recherches sur l'herpétofaune du Massif du Chaillu, Gabon. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique 72:47-57.
- Pauwels, O. S. G., E. Théleste, P. Carlino, L. Chirio, G. De Bruyne, C. d'Udekem d'Acoz, L. Gindorff, M. Van Steenberge, D. Zipper and L. J. T. White. 2023. Miscellanea Herpetologica Gabonica XVIII. Bulletin of the Chicago Herpetological Society 58(9):141-149.
- Pauwels, O. S. G., and J. P. Vande weghe. 2008. Les reptiles du Gabon. Washington, D.C.: Smithsonian Institution.
- Peters, W. C. H. 1876. Eine zweite Mittheilung über die von Hrn. Professor Dr. R. Buchholz in Westafrika gesammelten Amphibien. Monatsbericht der Königlich Preussischen Akademie der Wissenschaften zu Berlin 1876(2):117-123.
- Pietersen, D., L. Verburt and J. Davies. 2021. Snakes and other reptiles of Zambia and Malawi. Cape Town, South Africa: Struik Nature.
- Pritzel, C. 2011. Cornsnake morph guide. Palmyra, Wisconsin: Privately published. 130 pp.
- Rasmussen, J. B. 1991. Snakes (Reptilia: Serpentes) from the Kouilou River Basin, including a tentative key to the snakes of the République du Congo. Pp. 175-188. In: R. J. Dowsett and F. Dowsett-Lemaire, editors, Flore et faune du Bassin du Kouilou (Congo) et leur exploitation / Flora and fauna of the Kouilou Basin (Congo) and their exploitation. Tauraco Research Report (CONOCO) 4.
- Raw, L. R. G., and R. Deacon. 2021. Two additional specimens of *Naja (Boulengerina) nana* (Serpentes: Elapidae) with notes on captive husbandry and behaviour. Zoonova 9:1-8.

- Roux-Estève, R. 1965. Les serpents de la région de La Maboké - Boukoko. *Cahiers de La Maboké*, Paris 3(1):51-92.
- Sauvage, H.-E. 1884. Notice sur une collection de reptiles et de poissons recueillie a Majumba, Congo. *Bulletin de la Société Zoologique de France* 9:199-204.
- Schmidt, K. P. 1923. Contributions to the herpetology of the Belgian Congo based on the collection of the American Museum Congo Expedition, 1909–1915. Part II. Snakes, with field notes by Herbert Lang & James P. Chapin. *Bulletin of the American Museum of Natural History* 49(1):1-146.
- Smith, H. M. 1943. Another analysis of the status of the western king snakes of the *getulus* group. *American Midland Naturalist* 29(1): 245-251.
- Spawls, S., and W. R. Branch. 1995. *The dangerous snakes of Africa*. Sanibel Island, Florida: Ralph Curtis Books.
- Spawls, S., and W. R. Branch. 2020. *The dangerous snakes of Africa*. 2nd edition. Princeton, New Jersey: Princeton University Press.
- Spawls, S., K. Howell, R. C. Drewes and J. Ashe. 2002. *A field guide to the reptiles of East Africa: Kenya, Tanzania, Uganda, Rwanda and Burundi*. San Diego and London: Academic Press.
- Spawls, S., K. Howell, H. Hinkel and M. Menegon. 2018. *Field guide to East African reptiles*. 2nd edition. London and New York: Bloomsbury Publishing.
- Stucki-Stirn, M. C. 1979. Snake report 721: A comparative study of the herpetological fauna of the former West Cameroon/Africa. Teuffenthal, Switzerland: Herpeto-Verlag.
- Thys van den Audenaerde, D. F. E. 1965. Les serpents des environs de Léopoldville. *Revue de Zoologie et de Botanique Africaines* 72(3/4):366-388.
- Trape, J.-F. 2023. *Guide des serpents d’Afrique occidentale, centrale et d’Afrique du Nord*. Paris: IRD Éditions.
- Trape, J.-F., and R. Roux-Estève. 1990. Note sur une collection de serpents du Congo avec description d’une espèce nouvelle. *Journal of African Zoology* 104(5):375-383.
- Trape, J.-F., and R. Roux-Estève. 1995. Les serpents du Congo: Liste commentée et clé de détermination. *Journal of African Zoology* 109(1):31-50.
- Trutnau, L. 1998. *Giftschlangen: Schlangen im Terrarium*, Band 2. Stuttgart, Germany: Verlag Eugen Ulmer.
- Trutnau, L. 2004. *Venomous snakes: Snakes in the terrarium*. Malabar, Florida: Krieger Publishing Company.
- Wallach, V., K. L. Williams and J. Boundy. 2014. *Snakes of the world: A catalogue of living and extinct species*. Boca Raton, Florida: CRC Press.
- Wallach, V., W. Wüster and D. G. Broadley. 2009. In praise of subgenera: Taxonomic status of the cobras of the genus *Naja* Laurenti (Serpentes: Elapidae). *Zootaxa* 2236:26-36.
- Werner, F. 1902. Ueber westafrikanische Reptilien. *Verhandlungen der kaiserlich-königlichen zoologische-botanischen Gesellschaft in Wien* 52(1):332-348.
- Witte, G.-F. de. 1953. Reptiles. Exploration du Parc National de l’Upemba. Fascicule 6. Institut des Parcs Nationaux du Congo Belge. Pp. 1-322.
- Witte, G.-F. de. 1962. Genera des serpents du Congo et du Ruanda-Urundi. *Annales du Musée Royal de Afrique Centrale, Série in 8°, Sciences Zoologiques* 104:1-203.
- Witte, G.-F. de, and R. F. Laurent. 1942. Contribution à la faune herpétologique du Congo Belge. *Revue de Zoologie et de Botanique Africaines* 36(2):101-115.
- Wüster, W., L. Chirio, J.-F. Trape, I. Ineich, K. Jackson, E. Greenbaum, C. Barron, C. Kusamba, Z. T. Nagy, R. Storey, C. Hall, C. E. Wüster, A. Barlow and D. G. Broadley. 2018. Integration of nuclear and mitochondrial gene sequences and morphology reveals unexpected diversity in the forest cobra (*Naja melanoleuca*) species complex in Central and West Africa (Serpentes: Elapidae). *Zootaxa* 4455(1):68-98.
- Wüster, W., S. Crookes, I. Ineich, Y. Mané, C. E. Pook, J.-F. Trape and D. G. Broadley. 2007. The phylogeny of cobras inferred from mitochondrial DNA sequences: Evolution of venom spitting and the phytogeography of the African spitting cobras (Serpentes: Elapidae: *Naja nigricollis* complex). *Molecular Phylogenetics and Evolution* 45(2):437-453.

Herpetological Art in the Potawatomi Zoo, South Bend, Indiana — October 8, 2024

Photos and story by
Roger Carter
625 Lakeview Dr
Zionsville, IN 46077
drymarchonzz@hotmail.com

The Potawatomi Zoo is a small zoo that only took us about an hour and a half to look through the displays. It was Indiana's first zoo, established in 1902, and has over 400 animals. Their web site is www.potawatomizoo.org.

Just inside the entrance is a carousel that has an assortment of rides of zoo animals that include a gorilla, a leopard, a zebra plus an alligator, a tortoise that is probably meant to represent a Galapagos tortoise and a frog. The alligator and tortoise rides are colored shades of black and gray and the frog is colored green. There are also several pictures of what I think are green sea turtles, (*Chelonia mydas*).



An enclosure houses a radiated tortoise (*Astrochelys radiata*) and two Galapagos tortoises that are identified as saddleback Galapagos tortoises (*Chelonoidis hoodensis*). Near the enclosure is a large bronze statue of a Galapagos tortoise that, from the ground to the tip of its nose, is almost six feet tall. The statue does not represent a saddleback tortoise.

The only live herps we saw were one adult American alligator (*Alligator mississippiensis*), the radiated tortoise and the saddleback Galapagos tortoises.





Minutes of the CHS Board Meeting, November 19, 2024

A virtual meeting of the CHS board of directors via Zoom conference video/call was called to order at 7:16 P.M. Board members Rich Crowley, Gaby Evans, Kyle Houlihan and Margaret Ann Paauw were absent. Craig Bechtel, Talia Fratto, Timothy R. Guy and Bob Hilger also attended. Minutes of the October 18 board meeting were read.

Officers' Reports

Treasurer: No report available. Rich Crowley needs to revise the books dating back to August and will get the financial reports out as soon as possible.

Membership secretary: Mike Dloogatch read the list of those whose memberships recently expired.

Sergeant-at-arms: Ten people attended the October 30 meeting at the Elgin Math and Science Academy (EMSA).

Committee Reports

Shows: Tinley Park Fishing, Travel & Outdoor Expo, Tinley Park Convention Center, January 10–12.

Junior Herpers: Caitlin Monesmith reported that 50 people attended the November 17 meeting. The group talked about indigenous species in Illinois. Timothy Guy volunteered to speak at a future meeting.

Old Business

Gail Oomens will be emailing a letter to members requesting donations and involvement.

New Business

We have been told that we are no longer able to hold the CHS monthly meetings at the Elgin Math and Science Academy. The board discussed the urgent need to come up with a location to hold the general meetings.

The meeting adjourned at 8:30 P.M.

Respectfully submitted by Gail Oomens

Index to Scientific Names of Amphibians and Reptiles for Volume 59 (2024)

January 1-16 February 17-32 March 33-48	April 49-64 May 65-80 June 81-96	July 97-108 August 109-124 September 125-136	October 137-144 November 145-156 December 157-172
Acrantophis 57	punctatus 88	Bothrops 54	punctatissimus 115
Acris	speciosus 88	asper 58	Chilorhinophis gerardi 57
crepitans 151-153	woodhousii 140	atrox 57	Chironius 56
gryllus 59-61	Anguis fragilis 15	Boulengerina 157-164	fuscus 56, 57
crepitans 151	Anilius 54	annulata 55, 158, 161, 162	Chondropython azurea 55
gryllus 60	leptosoma 55	annulata 157, 158, 159, 160, 162	Chrysemys picta 29, 103-105
Acrochordus	Anilius scytale 55	stormsi 157, 158, 159, 160, 162	Clelia clelia 54
arafurae 56, 57	Anolis	christyi 157, 158, 159, 160, 161, 162	Coleonyx 122
granulatus 56, 157	carolinensis 28	dybowskii 158	brevis 88
javanicus 55, 56, 57	conspersus 113, 114	guineensis 157	Coluber 88
Actinemys pallida 96	nebuloides 114	melanoleuca 58, 157, 158, 161	flagellum 43
Afronaja 157, 161	nebulosus 50, 51, 68, 70, 73, 114	multifasciata 157	Coniophanes
ashei 157	sagrei 67, 69, 70	nana 157-164	fissidens 102
katiensis 157	utowanae 113, 114	peroescobari 157	lateritius 71, 74
mossambica 157	Anomochilus 57	savannula 157	Conopsis
nigricincta 157	monticola 57	subfulva 157	biserialis 53
nigricollis 157	weberi 57	Brachyophis revoili 56, 57	nasus 42
nubiae 157	Antaresia stimsoni 57	Bufo occidentalis 113	Cophosaurus texanus 88
pallida 157	Aplopeltura 56	Bungarus bungaroides 54	Corallus
Afrotyphlops	Aquarana catesbeiana 113	Calamaria 54, 56	cookii 56
obtusus 55	Archelon ischyros 155	battersbyi 57	hortulanus 157
steinhausi 55	Argyrophis siamensis 55	borneensis 57	Craugaster
Agalychnis	Arizona elegans 42, 88	buchi 57	hobartsmithi 69, 73, 113
callidryas 122	Aspidelaps bocagei 158	gimletti 57	occidentalis 68, 69, 73
dacnicolor 69, 73	Aspidites ramsayi 80	gracillima 57	pygmaeus 69, 73, 113
Agkistrodon 45, 88	Aspidoscelis	linnaei 57	vocalis 69, 73
bilineatus 50, 51, 71, 74	communis 51, 70, 74	lovii 57	Crocodylus
contortrix 58, 161	costatus 70, 74	melanota 57	acutus 30, 70, 73, 114
Ahaetulla	gularis 42	pavimentata 57	moreletii 113, 114
isabellina 56	inornata 42	schmidtii 57	Crotalophorus
nasuta 157	lineattissimus 68, 70, 74	septentrionalis 55, 56, 57	Kirtlandii 23
prasina 55, 157	Astrochelys radiata 165	virgulata 56	tergeminus 23
pulverulenta 157	Atractaspis 45	Calamophis kateandersae 56	Crotalus 54, 88
Aipysurus laevis 110	reticulata 56	Calliophis 56	adamanteus 42, 55
Alligator mississippiensis 62, 79, 165	Atractus 54	Candoia	atrox 43, 58, 87, 88, 89, 161
Amblyodipsas polylepis 56	variegatus 55	carinata 57	basiliscus 71, 74
Ambystoma	vertebralis 55	paulsoni 57	helleri 42
bishopi 106	Barisia	Caretta caretta 42	horridus 23, 58, 106, 161
californiense 30	ciliaris 114	Carphophis 56	oreganus 42
flavipiperatum 11	imbricata 114	Casarea dussumieri 55, 56, 57	ornatus 88
nigrum 113	Basiliscus vittatus 68, 70, 73	Cerastes cerastes 54	ruber 42
rosaceum 113, 114	Bitis	Cercophis auratus 56, 157	scutulatus 41-48
nigrum 113, 114	arietans 57, 161	Charina bottae 57	salvini 44
rosaceum 113	gabonica 55, 57	Chelodina oblonga 96	scutulatus 44
sonoriensis 113	nasicornis 57	Chelonoidis hoodensis 165	transversus 55
tigrinum tigrinum 30	Boa	Chelydra serpentina 104, 107	triseriatus 55
Amerotyphlops	constrictor 56, 57, 58, 114, 125	Chersobius	willardi 113, 115
microstomus 55, 56	imperator 58, 114	boulengeri 96	Crotaphytus collaris 31
paucisquamus 55	sigma 70, 74, 114	signatus 96	Cryptobranchus
Amphiesmoides ornaticeps 57	Bogertophis subocularis 42	Chilomeniscus 56	alleganiensis alleganiensis 13
Anaxyrus	Boiga	cinctus 115	Ctenosaura
mexicanus 113	cynodon 157		acanthura 114
fowleri 140-142	drapiezii 157		brachylopha 114

brevirostris 114	Eunectes murinus 12, 55, 57, 58, 64	Hemorrhois ravergieri 55	nigromarginatus 157
parkeri 114	Eurycea	Heterodon 88	Lepturophis albofuscus 157
pectinata 51, 68, 70, 74, 114	longicauda 75-76	nasicus 15, 42, 161	Letheobia
Cylindrophis 45, 55	wilderae 106	platirhinos 42	akagerae 55
ruffus 56	Exerodonta smaragdina 69, 73	Holcosus sinister 70, 74	jubana 55
Daboia russelii 161	Farancia abacura 58	Homoroselaps lacteus 57	Liasis fuscus 110
Dasypeltis scabra 157	Fowlea piscator 58	Hydrophis 55	Limnonaja 159
Dendrelaphis 54	Gavialis gangeticus 79	major 110	Liopholidophis
bifrenalis 56, 157	Gehyra mutilata 38-40, 67, 69, 70, 73	platurus 71, 74	dolicocercus 56
calligastra 157	Geophis 54	Hyla	grandidieri 56, 157
levitoni 56	aquilonaris 130, 131	cinerea 15	rhadinaea 157
punctulatus 157	bicolor 130	crucifer 21, 59, 84	sexlineatus 157
Dendrophidion	chalybeus 130	versicolor 78	Lithobates
dendrophis 54	dugesi 130, 131	Hypnale hypnale 54	berlandieri 88
vinitor 57	dugesii 128-131	Hypopachus variolosus 9-11	catesbeianus 106
Dermochelys coriacea 71, 74	aquilonaris 130	Hypsiglena 88	cora 113
Desmognathus	dugesii 130	jani 88	forreri 113
imitator 106	nigrocinctus 130	torquata 71, 74	megapoda 113
wrighti 106	tarascae 130	Iguana iguana 13, 62, 70, 74	montezumae 113
Diadophis punctatus 42	Gerarda prevostiana 55	Imantodes	pustulosus 113
Dipsas 54	Gerrhonotus	cenchoa 157	Loxocemus bicolor 58
indica 56, 157	farri 146	gemmistratus 51, 71, 74, 157	Lycodon 54
lavillai 55	imbricatus ciliaris 114	Incaspis amaru 55	aulicus 161
peruana 157	infernalis 146	Incilius	Lystrophis semicinctus 55
Dipsosaurus dorsalis 42	lazcanoi 146	marmoreus 67, 69, 73	Macrochelys temminckii 63
Dispholidus kivuensis 157	liocephalus 70, 73, 146	mazatlanensis 69, 73	Malayopython
Dolichophis jugularis 55	lugoi 146	occidentalis 113	reticulatus 55, 57, 125-127
Drymarchon 45	ophiurus 146	Indotyphlops braminus 67, 69, 71, 74	Malpolon 45
couperi 58	parvus 146-150	Intellagama lesueurii 96	Manolepis putnami 71, 74
melanurus 51, 70, 74	Gerrhopilus	Isthmura sierraoccidentalis 113, 114	Manouria emys emys 139
Drymobius margaritiferus 70, 74	persephone 55	Kinosternon	Marisora aquilonaria 69, 70, 74
Dryophiops rubescens 157	thurstoni 56	hirtipes 113, 115	Masticophis
Duberria lutrix 55	Gloydius	integrum 51, 71, 73, 74	flagellum 41-48, 88, 90
Echis coloratus 55	caraganus 55	sonoriense 33-35	lineatus 114
Eirenis	himalayanus 55	vogti 71, 74	mentovarius 70, 74, 113, 114
coronella 55	monticola 55	Kolpophis annandalei 56	taeniatus 157
persicus 157	rubromaculatus 55	Lachesis muta 55	Mastigodryas
Elaphe carinata 157	shedaoensis 110	Lampropeltis 45, 88	melanolomus 51, 70, 74, 157
Eleutherodactylus	strauchi 55	californiae 58, 161	Maticora bilineata 56
jamesdixoni 69, 73, 113	Gongylophis conicus 58	greeri 113, 114	Megatyphlops
modestus 37, 68, 69, 73, 113	Gongylosoma 56	polyzona 51, 70, 74, 102-103	mucruso 55, 57
nitidus 113	longicaudum 56	splendida 87-94	schlegelii 56
orarius 37	Gopherus	Laticauda	Micrelaps muelleri 57
pallidus 69, 73, 113	agassizii 42	colubrina 110	Micruroides 88
planirostris 31, 36-37	polyphemus 29, 42, 143	laticaudata 54	Micrurus 45, 54
teretistes 113	Graptemys 80	Lepidochelys	browni 71, 74
Emydocephalus 57	Grayia 157	kempii 42	diastema 102
annulatus 110	caesar 157	olivacea 71, 74	fulvius 43
Enhydrina schistosa 55, 56	obscura 157	Lepidodactylus	mipartitus 56
Enhydris enhydris 54, 57	ornata 157	lugubris 67, 69, 70	nigrocinctus 102
Epicerates maurus 58	smythii 157	Leptodactylus melanonotus 69, 73	tener 43, 88
Eretmochelys imbricata 42, 71, 74	tholloni 157	Leptodeira	Morelia
Eristicophis macmahonii 57	Hebius annamensis 157	maculata 71, 74	azurea 157
Erpeton tentaculatum 55, 56	Helminthophis praeocularis 56	polysticta 71, 74, 115	viridis 157
Erythrolamprus 54	Heloderma horridum 70, 73	septentrionalis 102, 115	Myriopholis
aesculapii 157	Hemachatus haemachatus 54	Leptomicrurus narduccii 56	algeriensis 55
mimus 102	Hemidactylus 38, 39	Leptophis	longicauda 56
sagittifer 157	frenatus 39, 67, 69, 70	ahaetulla 157	Naja 157
Eublepharis macularius 28	turcicus 39	diplotropis 51, 70, 74	atra 157

fuji 157	saxatilis 51	Rena 88	Stichophanes 56
kaouthia 157	Philodryas	Rhacophorus nigropalmatus 134	Storeria
luzonensis 157	arnaldoi 56	Rhadinaea	dekayi 55
mandalayensis 157	trilineata 157	decorata 157	storerioides 54
naja 54, 58, 157	Pituophis 88	hesperia 71, 74	Suta suta 54
oxiana 157	catenifer 42, 58, 87-94, 161	taeniata 81-83, 113	Tachymenis peruviana 55
philippinensis 157	melanoleucus melanoleucus 42	aemula 81, 83	Tantilla 54, 88
sagittifera 157	Platyceps	taeniata 81, 83	calamarina 51, 70, 74
samarensis 157	ladacensis 157	Rhinella	Teira dugesii 31
siamensis 157	rhodorachis 157	horribilis 69, 73	Telescopus dhara 55
sputatrix 157	saharicus 55, 157	marina 3	Terrapene
sumatrana 157	sinai 55	Rhinocheilus	carolina 31, 78
Namibiana	Plestiodon	antonii 113, 115	ornata 78, 95
labialis 57	colimensis 114	lecontei 87, 88, 115	Tetracheilostoma carlae 55
occidentalis 57	parvulus 70, 74	Rhinoclemmys pulcherrima 71, 74	Tetralepis fruhstorferi 57
Natrix natrix 54	Plethodon	Rhinoleptus koniagui 57	Thamnophis 2-6, 88
Nephurus 80	glutinosus 106	Rhinophis	cyrtopsis 115
Nerodia	jordani 106	gunasekarai 57	eques 2, 4, 5, 115
erythrogaster 143	teyahalee 123	homolepis 55	errans 2, 3, 4, 5
harteri 143	Podarcis erhardii 15	mendesi 55	marcianus 88
rhombifer 143	Polemon fulvicollis 56	philippinus 55, 57	melanogaster 2, 3, 4, 5, 115
sipedon 57	Popeia popeiorum 54	zigzag 55, 56	radix 57
Ninia sebae 102-103	Pristimantis dendrobatoides 26	Salvadora mexicana 70, 74	rufipuncatus 6
Notechis scutatus 55, 57, 58	Psammophis	Salvator merianae 27	sirtalis 57
Nothopsis rugosus 56	angolensis 56	Sarcohyala hapsa 113	parietalis 110
Nyctophilopython oenpelliensis 55	punctulatus 157	Sarcosuchus imperator 156	sirtalis 145
Oligodon 54	schokari 55, 157	Sanzinia 57	unilabialis 2, 3, 5, 6
lungshenensis 157	sibilans 157	Scaphiodontophis	validus 71, 74
macrurus 157	Pseudablabes 56	annulatus 57	Thelotornis usambaricus 56
Opheodrys aestivus 42, 157	Pseudacris	venustissimus 57	Thermophis
Ophiophagus 45	brachyphona 119	Scaphiopus couchii 42, 88	baileyi 55
bungarus 157	brimleyi 20-22	Sceloporus	shangrila 55
hannah 55	crucifer 21, 59, 84	albiventris 70, 74	zhaoermii 55
Osteopilus septentrionalis 31	feriarum 119	clarkii 70, 74	Titanoboa cerrejonensis 137
Oxybelis	fouquetti 119	lemosespinali 113, 114	Tlalocohyla smithii 69, 73
aeneus 56, 113, 114, 115, 157	kalmi 119-121	melanorhinus 70, 74	Tomodon dorsatum 57
brevirostris 56	nigrita 84-86	utiformis 70, 74	Trachemys
microphthalmus 51, 70, 74, 114	nigrita 84, 85	Scinax staufferi 67, 69	decorata 95
vittatus 113, 114	regilla 30	Scincella lateralis 15	ornata 71, 74
Oxyuranus scutellatus 55	streckeri 119	Senticolis triaspis 70, 74	scripta 100
Pantherophis 88	Pseudaspis cana 57	Siagonodon septemstriatus 56	Trachyboa boulengeri 57
emoryi 88	Pseudemys concinna 97-101	Sibynophis	Trachycephalus
guttatus 161	Pseudotriton ruber ruber 123	collaris 57	venulosa 10
Pareas menglaensis 57	Ptyas	melanocephalus 157	vermiculatus 69, 73
Pelamis platura 55	dhumnades 157	Sinomicrurus 56	Trilepida dimidiata 56
Phelsuma grandis 28	mucosus 55	Sistrurus catenatus 23-24	Trimorphodon
Phrynohyas venulosa 10	Python	Smilisca	lambda 42
Phrynosoma 95	bivittatus 57, 58	baudinii 69, 73	paucimaculatus 70, 74
cornutum 29, 95	molurus 55, 57, 58	fodiens 69, 73	Trioceros jacksonii 122
coronatum 42	natalensis 56	Sonora	Triprion spatulatus 69, 73
diminutum 95	regius 58, 161	cincta 113, 115	Tropidodipsas philippii 71, 74
hernandesi 95	sebae 55, 56, 57, 58	fasciata 115	Typhlops coecatus 55
modestum 42, 88	Ramphotyphlops cumingii 56	mutabilis 113, 115	Uraeus 157, 161
Phyllobates	Rana	punctatissima 115	anchietae 157
bicolor 27	boylei 140	semiannulata 88	annulifera 157
terribilis 27	cascadae 140	straminea 115	arabica 157
Phyllodactylus	catesbeiana 90	Spalerosophis diadema 55	haje 157
isabelae 69	cora 69, 73	Spilotes 56	nivea 58, 157
lanei 69, 70, 74	psilonota 132-133	sulphureus 56	obscura 157

senegalensis 157	Urosaurus	snelli 56	Xenodermus javanicus 56, 57, 157
Uromacer 56	bicarinatus 70, 74	vermiformis 54	Xenopeltis 56
frenatus 157	ornatus 50, 51	Vipera	unicolor 57
oxyrhynchus 55	Varanus	berus 110	Xenotyphlops grandidieri 56
Uropeltis	komodoensis 79	monticola 55	Zaocys 56
ceylanica 55	priscus 137	Virgotyphlops braminus 55	carinatus 55
saffragamus 55, 56	Vermicella		

Bulletin of the Chicago Herpetological Society 59(12):170-172, 2016

Author–Title Index for Volume 59 (2024)

January 1-16	April 49-64	July 97-108	October 137-144
February 17-32	May 65-80	August 109-124	November 145-156
March 33-48	June 81-96	September 125-136	December 157-172

Ahumada-Carrillo, I. T.	See Grünwald, C. I.	
Ávila-Isáis, H. B.	See Haro-Galván, P. S.	
Barker, D. G.	Book Review: <i>Turtling: Following My Passion</i> by Robert Krause	1
Barker, D. G.	Book Review: <i>Snakes Without Borders</i> by Rick Shine	109
Barreras-Gaxiola, R.	See Grünwald, C. I.	
Buontempo, M.	See Elden, J. M.	
Burgess, K.	See Elden, J. M.	
Carter, R.	Herpetological Art at the Mesker Zoo and Botanic Garden, Evansville, Indiana—September 29, 2023	12
Carter, R.	Herpetological Art at the Henson Robinson Zoo, Springfield, Illinois—April 21, 2023	27
Carter, R.	Herpetological Art at the Brookfield Zoo, Brookfield, Illinois—July 27, 2023	62
Carter, R.	Herpetological Art at the Fort Wayne Children’s Zoo, Fort Wayne, Indiana—June 2023	79
Carter, R.	Herpetological Art in the Peoria, Illinois, Zoo—March 29, 2024	107
Carter, R.	Herpetological Art in the RainForest Adventures Zoo—June 19, 2024	122
Carter, R.	Herpetological Art in the Knoxville, Tennessee, Zoo—June 21, 2024	137
Carter, R.	Herpetological Art in Ripley’s Aquarium of the Smokies—June 18, 2024	155
Carter, R.	Herpetological Art in the Potawatomi Zoo, South Bend, Indiana—October 8, 2024	165
Cassell, A.	See Meshaka, W. E., Jr.	
Cassell, M.	See Meshaka, W. E., Jr.	
Cassell, R.	See Meshaka, W. E., Jr.	
Castro-Bastidas, H. A.	Taxonomic and Geospatial Review of the Herpetofauna of Sinaloa, Mexico	111
Cavataio, J. T., and N. J. Kutok	A Historical Report of Death by an Eastern Massasauga, <i>Sistrurus catenatus</i> (Rafinesque, 1818), in Piatt County, Illinois, USA	23
Cebula, J.	You Don’t Need to Be Einstein: Becoming a Citizen Scientist	7
Cebula, J.	Audubon’s Herps	17
Conley, D.	See Elden, J. M.	
Cruz-Sáenz, D.	See Ruiz-Álvarez, R.	
Elden, J. M., J. Picone, M. Buontempo, K. Burgess, H. Parasu, F. A. Feliciano-Rivera and D. Conley	Account of a Non-native <i>Malayopython reticulatus</i> in Puerto Rico	125
Feliciano-Rivera, F. A.	See Elden, J. M.	
Ferrer-Montoya, D., D. Lazcano, S. Hernandez-Bocardo, L. A. Fucsko and L. D. Wilson	Notes on the Herpetofauna of Mexico 45: Predation by a Desert Kingsnake (<i>Lampropeltis splendida</i>) on a Gophersnake (<i>Pituophis catenifer</i>) in the municipality of Mina, Nuevo León, Mexico	87
Figueroa-Acosta, S.	See Loc-Barragán, J. A.	

Fucsko, L. A.	See Ferrer-Montoya, D.	
Fucsko, L. A.	See also Haro-Galván, P. S.	
Fucsko, L. A.	See also Lazcano, D.	
Fucsko, L. A.	See also Ruiz-Álvarez, R.	
Gerard, T. S.	See Palis, J.G.	
Goldberg, S. R.	Notes on Reproduction of Brimley’s Chorus Frogs, <i>Pseudacris brimleyi</i> (Anura: Hylidae), from Virginia	20
Goldberg, S. R.	Notes on Reproduction of Southern Cricket Frogs, <i>Acris gryllus</i> (Anura: Hylidae), from North Carolina	59
Goldberg, S. R.	Notes on Reproduction of Southern Chorus Frogs, <i>Pseudacris nigrita</i> (Anura: Hylidae), from North Carolina	84
Goldberg, S. R.	Notes on Reproduction of New Jersey Chorus Frogs, <i>Pseudacris kalmi</i> (Anura: Hylidae)	119
Goldberg, S. R.	Notes on Reproduction of Fowler’s Toad, <i>Anaxyrus fowleri</i> (Anura: Bufonidae), from North Carolina	140
Goldberg, S. R.	Notes on Reproduction of Northern Cricket Frogs, <i>Acris crepitans</i> (Anura: Hylidae), from North Carolina	151
González-Bernal, M. A.	See Grünwald, C. I.	
Grünwald, C. I., M. A. González-Bernal, E. I. Rojas-Aguilar, R. Ramírez-Chaparro, I. T. Ahumada-Carrillo and M. del C. G. Mendoza-Portilla	Mexican Geographical Distribution Notes 11: First State Records of Three Species of <i>Thamnophis</i> (Serpentes: Natricidae) from Sinaloa and Notes on the Distribution of the Genus in the “Golden Triangle” Region of Mexico	2
Grünwald, C. I., A. Pérez-Alcalá and C. Montaña-Ruvalcaba	Mexican Geographical Distribution Notes 12: First Records from the State of Colima for the Invasive <i>Eleutherodactylus planirostris</i> (Anura: Eleutherodactylidae)	36
Grünwald, C. I., M. A. González-Bernal, E. I. Rojas-Aguilar, I. T. Ahumada-Carrillo, R. Barreras-Gaxiola and M. del C. G. Mendoza-Portilla	Mexican Geographical Distribution Notes 13: Interesting Records of the Snake <i>Rhadinaea taeniata</i> (Serpentes: Dipsadinae) from Western Mexico, including New State Records from Sinaloa and Durango	81
Haro-Galván, P. S., R. Rosas-Valdez, D. Lazcano, H. B. Ávila-Isáis, L. A. Fucsko and L. D. Wilson	Notes on the Herpetofauna of Mexico 46: Morphology and Color Patterns of a Dugès' Earth Snake (<i>Geophis dugesii</i> Bocourt, 1883) from the Municipality of Genaro Codina, Zacatecas, Mexico	128
Hernandez-Bocardo, S.	See Ferrer-Montoya, D.	
Hernández-Juárez, E. E.	See Ruiz-Álvarez, R.	
Karsen, S. J.	See Palis, J. G.	
Kasson, M. A.	See Palis, J. G.	
Kelly-Hernández, A.	See Vásquez-Cruz, V.	
Kutok, N. J.	See Cavataio, J. T.	
Lazcano, D., P. Lavín-Murcio, R. F. Alvidrez-Heredia, L. A. Fucsko and L. D. Wilson	Notes on the Herpetofauna of Mexico 44: Predation by a Coachwhip (<i>Masticophis flagellum</i>) on a Mohave Rattlesnake (<i>Crotalus scutulatus</i>) in the municipality of Hidalgo del Parral, Chihuahua, Mexico	41
Lazcano, D., H. A. Vargas-Ramírez, C. A. Moreira-Campos, M. Martínez-Duarte and L. A. Fucsko	Notes on the Herpetofauna of Mexico 47: Observations on Feeding in Captivity by Pygmy Alligator Lizards, <i>Gerrhonotus parvus</i> Knight and Scudday, 1985 (Squamata: Anguidae)	146
Lazcano, D.	See also Ferrer-Montoya, D.	
Lazcano, D.	See also Haro-Galván, P. S.	
Lazcano, D.	See also Ruiz-Álvarez, R.	
Loc-Barragán, J. A., and J. P. Ramírez-Silva	Notes on the Herpetofauna of Nayarit, Mexico 4: List of Reptiles Collected on María Madre Island, San Blas, Nayarit, Mexico, by Herr Alphonse Forrer	49
Loc-Barragán, J. A.	Notes on the Herpetofauna of Nayarit, Mexico 6: Amphibians and Reptiles of the Municipality of Bahía de Banderas	65
Loc-Barragán, J. A., S. Figueroa-Acosta and E. Miramontes-Medina	Notes on the Herpetofauna of Nayarit, Mexico 7: New Geographical Record for the Smooth-backed Frog (<i>Rana psilonota</i>) in Nayarit, Mexico	132
Loc-Barragán, J. A.	See also Miramontes-Medina, E.	
Macklin, J., and D. J. Watermolen	Attempted Predation by a Red-winged Blackbird on a Hatchling Painted Turtle	103
Martínez-Duarte, M.	See Lazcano, D.	
McDowell, W. T.	A Brief Description of Newly Hatched <i>Eurycea longicauda</i> Larvae (Plethodontidae)	75
Mendoza-Portilla, M. del C. G.	See Grünwald, C. I.	

Meshaka, W. E., Jr., R. Cassell, A. Cassell and M. Cassell	Fall Courtship by Eastern Gartersnakes, <i>Thamnophis sirtalis sirtalis</i> , in South-Central Pennsylvania	145
Miramontes-Medina, E., D. Molina and J. A. Loc-Barragán	Notes on the Herpetofauna of Nayarit, Mexico 5: First Record of <i>Conopsis biserialis</i> from the State of Nayarit	53
Miramontes-Medina, E.	See also Loc-Barragán, J. A.	
Molina, D.	See Miramontes-Medina, E.	
Montaño-Ruvalcaba, C.	See Grünwald, C. I.	
Moreira-Campos, C. A.	See Lazcano, D.	
Palis, J. G.	Book Review: <i>Basecamp in the Tropics: My Adventures Discovering Biodiversity in South America</i> by D. Bruce Means .	25
Palis, J. G., T. S. Gerard, S. J. Karsen, M. A. Kasson, J. A. Schumacher and J. J. Schumacher	Six Serendipitous <i>Pseudemys</i> Sightings in Southern Illinois	97
Palis, J. G.	Book Review: <i>Frog Day: A Story of 24 Hours and 24 Amphibian Lives</i> by Marty Crump, illustrated by Tony Angell . .	134
Parasu, H.	See Elden, J. M.	
Pérez-Alcalá, A.	See Grünwald, C. I.	
Picone, J.	See Elden, J. M.	
Ramírez-Chaparro, R.	See Grünwald, C. I.	
Ramírez-Silva, J. P.	See Loc-Barragán, J. A.	
Repp, R. A.	Observation of Tree Climbing by Sonora Mud Turtles (<i>Kinosternon sonoriense</i>), and the Creation Story behind a Famous Dr. Seuss Turtle Tale	33
Rojas-Aguilar, E. I.	See Grünwald, C. I.	
Rosas-Valdez, R.	See Haro-Galván, P. S.	
Ruiz-Álvarez, R. M., D. Cruz-Sáenz, E. E. Hernández-Juárez, D. Lazcano, L. A. Fucsko and L. D. Wilson	Notes on the Herpetofauna of Western Mexico 32: First Record of Albinism in Sheep Frogs (<i>Hypopachus variolosus</i>) in Jalisco, Mexico . . .	9
Schumacher, J. A.	See Palis, J. G.	
Schumacher, J. J.	See Palis, J. G.	
Vargas-Ramírez, H. A.	See Lazcano, D.	
Vásquez-Cruz, V., and A. Kelly-Hernández	Confirmation of the Presence of the Invasive Stump-toed Gecko, <i>Gehyra mutilata</i> (Wiegmann, 1834) (Squamata: Gekkonidae), in the State of Veracruz, Mexico	38
Vásquez-Cruz, V.	See also Villegas-Castillo, J.	
Villegas-Castillo, J., and V. Vásquez-Cruz	False Coral Snake versus False Coral snake in Veracruz, Mexico: First Record of <i>Ninia sebae</i> (Squamata: Colubridae) as Prey of <i>Lampropeltis polyzona</i> (Squamata: Colubridae)	102
Wallach, V.	Serpentine Superlatives: Extreme Numbers—Large and Small	54
Wallach, V.	Review of African Water Cobras (<i>Boulengerina</i> spp.) from the Congo, with a Range Extension for <i>Boulengerina nana</i> (Collet & Trape, 2020) (Squamata: Serpentes: Elapidae)	157
Watermolen, D. J.	See Macklin, J.	
Wilson, L. D.	See Ferrer-Montoya, D.	
Wilson, L. D.	See also Haro-Galván, P. S.	
Wilson, L. D.	See also Lazcano, D.	
Wilson, L. D.	See also Ruiz-Álvarez, R.	

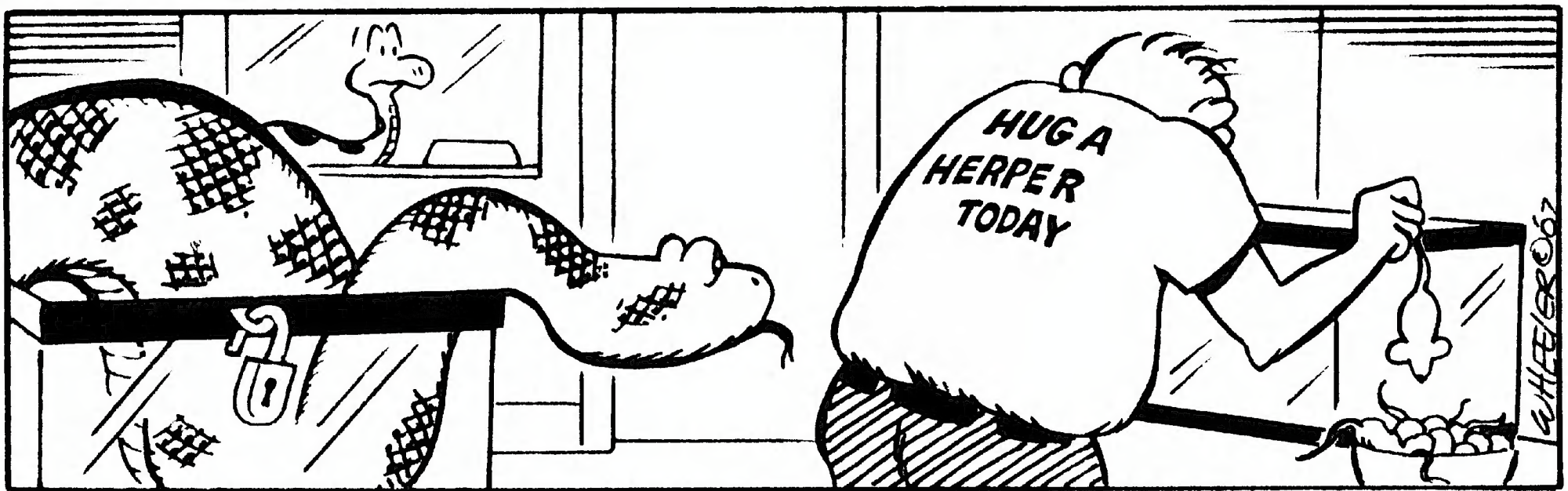
UPCOMING MEETINGS

Monthly meetings of the Chicago Herpetological Society have been suspended in the absence of a suitable venue.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? The next board meeting will be held online via Zoom. If you wish to attend, please email: rcrowley@chicagoherp.org.

THE ADVENTURES OF SPOT



Periodicals Postage
Paid at Chicago IL

CHICAGO HERPETOLOGICAL SOCIETY

Affiliated with the Chicago Academy of Sciences

2430 North Cannon Drive • Chicago, Illinois 60614
